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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,167	10/14/2003	Douglas W. Arntson	R11.12-0804	4266

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EXAMINER

KOSOWSKI, ALEXANDER J

ART UNIT PAPER NUMBER

2125

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/685,167

Applicant(s)

ARNTSON, DOUGLAS W.

Examiner

Alexander J. Kosowski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/2/04, 1/31/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

- 1) Claims 1-24 are presented for examination.

Claim Rejections - 35 USC § 102

- 2) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- 3) Claims 1-5, 8, 10, 12-14, 16-20 and 22-23 are rejected under 35 U.S.C. 102(b) as being unpatentable by Fragnito et al (U.S. Pat 5,706,007).

Referring to claim 1, Fragnito teaches a signal conversion comprising a first pair of electrical connections configured to couple to a two-wire process control current loop which includes a two-wire process variable transmitter and a second pair of electrical connections configured to couple to a voltage input channel of a process device (col. 2 lines 31-45); and an electrical component electrically connected to a first electrical connection of the first pair of electrical connections and a first electrical connection of the second pair of electrical connections for digital communication with the two-wire process variable transmitter (col. 2 lines 47-64).

Referring to claim 2, Fragnito teaches the apparatus of claim 1 wherein the electrical component is in series between the electrical connections (Figure 2A).

Referring to claim 3, Fragnito teaches that the electrical component comprises a resistor (col. 4 lines 42-55).

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Referring to claim 4, Fragnito teaches including a voltage drop component connected between the second pair of electrical connections configured to provide a voltage drop in response to a current through the two-wire process control current loop (col. 4 lines 42-55).

Referring to claim 5, Fragnito teaches that the voltage drop component comprises a resistor (col. 4 lines 42-55).

Referring to claim 8, Fragnito teaches that a current through the two-wire process control current loop ranges between about 4 mA and 20 mA (col. 1 lines 19-22).

Referring to claim 10, Fragnito teaches the apparatus of claim 1 including a power supply (col. 4 lines 37-41).

Referring to claim 12, Fragnito teaches the apparatus of claim 1 including a output indicative of an active power supply on the two-wire process control current loop (col. 5 lines 13-22).

Referring to claim 13, Fragnito teaches the apparatus of claim 12 wherein the output comprises an optical output (col. 5 lines 13-22).

Referring to claim 14, Fragnito teaches the apparatus of claim 1 wherein the process device includes multiple input channels (col. 4 lines 42-56).

Referring to claim 16, Fragnito teaches a signal conversion device for use in a process control system, comprising: a first pair of electrical connections configured to couple to a two-wire process control current loop which includes a two-wire process variable transmitter and a second pair of electrical connections configured to couple to a voltage input channel of a process device (col. 2 lines 31-45); and digital communication coupling means for coupling a digital

communication signal to the two-wire process control current loop through the first pair of electrical connections (col. 2 lines 47-64).

Referring to claim 17, Fragnito teaches that the digital communication coupling means comprises a resistor (col. 4 lines 42-55).

Referring to claim 18, Fragnito teaches a method comprising providing a process control current loop for coupling to a two-wire process variable transmitter and providing a first pair of electrical connections on the two-wire process control current loop for coupling to a digital communicator (col. 2 lines 31-45); and providing a second pair of electrical connections for coupling to a voltage input channel of a process device (col. 2 lines 47-64).

Referring to claims 19-20, Fragnito teaches providing an impedance between the first pair and second pair of electrical connections (col. 4 lines 42-55).

Referring to claim 22, Fragnito teaches that a two-wire process control current loop carries an electrical current between about 4 mA and 20 mA (col. 1 lines 19-22).

Referring to claim 23, Fragnito teaches digitally communicating with the two-wire process variable transmitter (col. 2 lines 32-46).

Claim Rejections - 35 USC § 103

4) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5) Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fragnito, further in view of Burns (U.S. Pat 6,047,222).

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Referring to claim 15, Fragnito teaches the above. Fragnito also teaches the use of the Fieldbus protocol (col. 1 lines 29-31). However, Fragnito does not explicitly teach that the first pair of electrical connections is configured for HART communication.

Burns teaches a process control system which utilizes HART communication.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize HART communication in the invention taught by Fragnito since HART is a standard protocol in control systems and since the use of HART standards is typical for control networks involving mixed digital and analog signals (Burns, col. 19 lines 50-63).

Referring to claim 24, see rejection of claim 15 above.

6) Claims 3, 7, 9, 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fragnito.

Referring to claim 3, Fragnito teaches the above. However, Fragnito does not explicitly teach that the resistor has a resistance of between about 230 and about 600 ohms.

It is noted that it would have been obvious to one skilled in the art at the time the invention was made to utilize a resistors of any general size in the invention taught by Fragnito since it is well known to utilize resistors of varying sizes to effect specific changes in voltage.

Referring to claim 7, see rejection of claim 3 above.

Referring to claim 9, see rejection of claims 3 and 11 above.

Referring to claim 21, see rejection of claim 9 above.

Referring to claim 11, Fragnito teaches the above. In addition, Fragnito teaches that the power supply is coupled in series with the two-wire process control current loop (Figure 2b).

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However, Fragnito does not explicitly teach that the power supply provides a DC output of between about 10 V and about 50 V.

It is noted that it would have been obvious to one skilled in the art at the time the invention was made to utilize a power supply which may output various voltages in the invention taught by Fragnito since it is well known to utilize power supplies capable of outputting varying voltages in order to power elements of a system.

7) Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fragnito, further in view of Larson (U.S. Pat 6,014,612).

Referring to claim 6, Fragnito teaches the above. However, Fragnito does not explicitly teach including a switch connected in parallel with the electrical component.

Larson teaches the use of a switch in an electrical component in a process control network (col. 19 line 58 through col. 20 line 15).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a switch in parallel with an electrical component in the invention taught by Fragnito since this would allow for the connection and disconnection of specific control outputs and inputs to a system (Larson, col. 20 lines 1-15).

Conclusion

8) The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lojen (U.S. PGPUB 2004/0190592) – teaches an integrated sensor transmitter.

Pompei (U.S. Pat 5,803,604) – teaches a thermocouple transmitter.

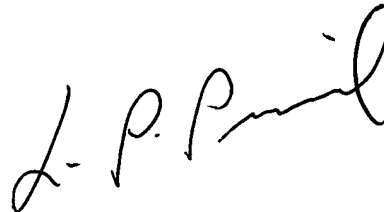
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander J Kosowski whose telephone number is 571-272-3744. The examiner can normally be reached on Monday through Friday, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. In addition, the examiner's RightFAX number is 571-273-3744.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Alexander J. Kosowski
Patent Examiner
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A handwritten signature in black ink, appearing to read 'L. P. Picard', written in a cursive style.

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100